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TC 1700

AF/1775

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

K-1951

Applicant : Takuji Goda et al.
Title : GLASS ARTICLE AND GLASS SUBSTRATE FOR DISPLAY PANEL
Serial No. : 09/755,047
Filed : January 8, 2001
Group Art Unit : 1775
Examiner : Andrew T. Piziali

Hon. Commissioner of Patents
P.O. Box 1450, Alexandria, VA 22313-1450

July 3, 2003

RESPONSE

Sir:

In response to the final Action of May 1, 2003, reinstatement of the appeal is requested. A supplemental appeal brief is attached herewith.

Respectfully submitted,
KANESAKA AND TAKEUCHI

by Manabu Kanesaka
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SUPPLEMENTAL APPEAL BRIEF

Sir:

In view of the request for reinstatement of the appeal, the supplemental appeal brief is submitted in triplicate.

The sections of REAL PARTY IN INTEREST, RELATED APPEALS AND INTERFERENCES, STATUS OF CLAIMS, SUMMARY OF INVENTION, GROUPING OF CLAIMS and CLAIMS are the same as those in the appeal brief previously filed. Therefore, these sections are incorporated into the present supplemental appeal brief.

STATUS OF AMENDMENT

In response to the final Action of May 1, 2003, no amendment was filed.

ISSUE

Whether claims 8 and 10 are anticipated by Tsai et al.

ARGUMENT

In Fig. 2 of Tsai et al., a liquid crystal display device includes first and second transparent conductive electrodes 10a, 10b,

and a liquid crystal 17 between the first and second electrodes 10a, 10b. A polarizing plate 11a is deposited above the electrode 10a, while a polarizing plate 11b is deposited under the electrode 10b.

Each electrode 10a or 10b has the same structure, e.g. a glass substrate 12b, a TiO₂-SiO₂ composite undercoat 13b under the glass substrate 12b, a transparent conductive ITO layer 14b under the TiO₂-SiO₂ composite undercoat 13b, and a TiO₂-SiO₂ composite overcoat 15b under the conductive ITO layer 14b.

It is held at column 4, lines 33-37 in Tsai et al. that it may be necessary to form a circuit pattern on each transparent conductive ITO layer 14a and 14b by an etching process before forming the TiO₂-SiO₂ composite overcoat 15a and 15b. The ITO layer 14b is used as a circuit or electrode for the liquid crystal display.

In Tsai et al., it is essential to use the TiO₂-SiO₂ composite layers 13b, 15b as the undercoat and overcoat of the transparent conductive ITO layer for providing insulation and hardness, i.e. protection (abstract).

In the invention, the barrier film mainly formed of indium oxide and/or tin oxide is formed on the underlayer. In Tsai et al., the ITO layer 14b is deposited on the TiO₂-SiO₂ composite undercoat 13b. Since ITO layer 14b has a circuit pattern (column 4, line 33) used as the electrode in Tsai et al., the ITO layer does not constitute the barrier film of the invention.

In case the ITO layer 14b is considered as the barrier film of the invention, it comes to a situation that the LCD of Tsai et al. does not have an electrode, and can not be operated as intended because the ITO layer 14b is used as the barrier film and there is no electrode in Tsai et al. In this case, since Tsai et al. does not operate as the LCD, it should be recognized that the ITO layer 14b is the electrode in Tsai et al., so that the barrier film of the invention is not formed in Tsai et al.

In case the ITO layer 14b is considered as the electrode operating as the barrier film, since the ITO layer 14b has the circuit pattern, it can not provide a proper barrier film. In the invention, the barrier film operates as it is, not used as the electrode.

In the invention, further, the insulating film having the

specific surface electrical resistance is formed on the barrier film, and the electrode film is deposited on the insulating film. In Tsai et al., the TiO₂-SiO₂ overcoat 15b is formed on the ITO layer 14b, but no electrode is formed on the TiO₂-SiO₂ overcoat 15b. In the invention, the electrode film is deposited on the insulating film, different from that of Tsai et al.

In paragraph 3 of the final Action, an electrode film 10a is referred to together with the glass substrate 12b, TiO₂-SiO₂ composite layer 13b, ITO film 14b and TiO₂-SiO₂ film 15b. However, the electrode film 10a is deposited on the opposite side of the liquid crystal 17, so that the electrode 10a can not be considered as a part of the structure discussed here. In this respect, the Examiner's opinion is not proper.

Also, in paragraph 3 of the final Action, it was held that since the material is substantially identical to the material suggested by the applicant, the film would inherently possess an electrical resistance in a range from 1.0×10^6 to $1.0 \times 10^{16} \Omega/\square$ even after heating process at 550 °C for 1 hour. In Tsai et al. the TiO₂-SiO₂ composite layer is used, but as admitted by the Examiner, the specific electrical resistance is not disclosed or suggested. Even if the material is similar to that used in the invention, the electrical resistance can be changed easily. Therefore, the specific electrical resistance of the invention is not disclosed or suggested in Tsai et al.

In regard to Fig. 1 of Tsai et al., it was held in the final Action that a display includes a glass substrate 2b, a SiO₂ layer or undercoat 3b, an ITO film or transparent conductive layer 4b, a SiO₂ or TiO₂ film, and an electrode film (2a plus 3a plus 4a).

However, an aligning film 5b is deposited on the SiO₂ or TiO₂ film above the ITO film 4b, and the electrode film referred to by the Examiner is located at a side opposite to a liquid crystal 6. Although the materials of the undercoat 3b and the film on the ITO film are different from those shown in Fig. 2, the structure of Fig. 1 is similar to that shown in Fig. 2. Therefore, the arguments for the insulating film and the electrode film discussed above are applied to the prior art shown in Fig. 1.

In the invention, in case metal is deposited on the barrier film, diffusion of metal ions of the metal into the glass substrate is substantially prevented by the barrier film. In Tsai et al., the TiO₂-SiO₂ composite layer is used such that the out diffusion of impurities (sodium ions) can be prevented from soda lime glass into liquid crystal to destroy the property of the liquid crystal. The operation of the barrier film of the invention is not considered at all in Tsai et al.

As explained above, the barrier film formed of at least one of indium oxide and tin oxide, and the insulating film of the invention are not disclosed or even suggested in Tsai et al. The structure of the invention in claim 8 is not disclosed or suggested in Tsai et al.

Incidentally, in paragraph 5 of the final Action of May 1, 2003, it was held that applicant's amendment on August 29, 2002 necessitated the new grounds of rejection presented in this office Action, and accordingly, this action is made final. However, inconsistency in the rejections in paragraphs 8 and 9 relative to the rejection in paragraph 6 in the final Action of January 15, 2003 was made by the Examiner, as stated in paragraph 1 of the final Action of May 1, 2003, not caused by the amendment on August 29, 2002. The Examiner can not make the Action of May 1, 2003 final.

CONCLUSION

As explained above, the cited reference does not disclose or even suggest the features of the invention.

It is respectfully requested to withdraw the rejection and allow the application.

Respectfully submitted,
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